

Developments in Drought Planning and Policy



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National Drought Mitigation Center



Mission: To lessen societal vulnerability to drought by promoting planning and the adoption of appropriate risk management techniques.

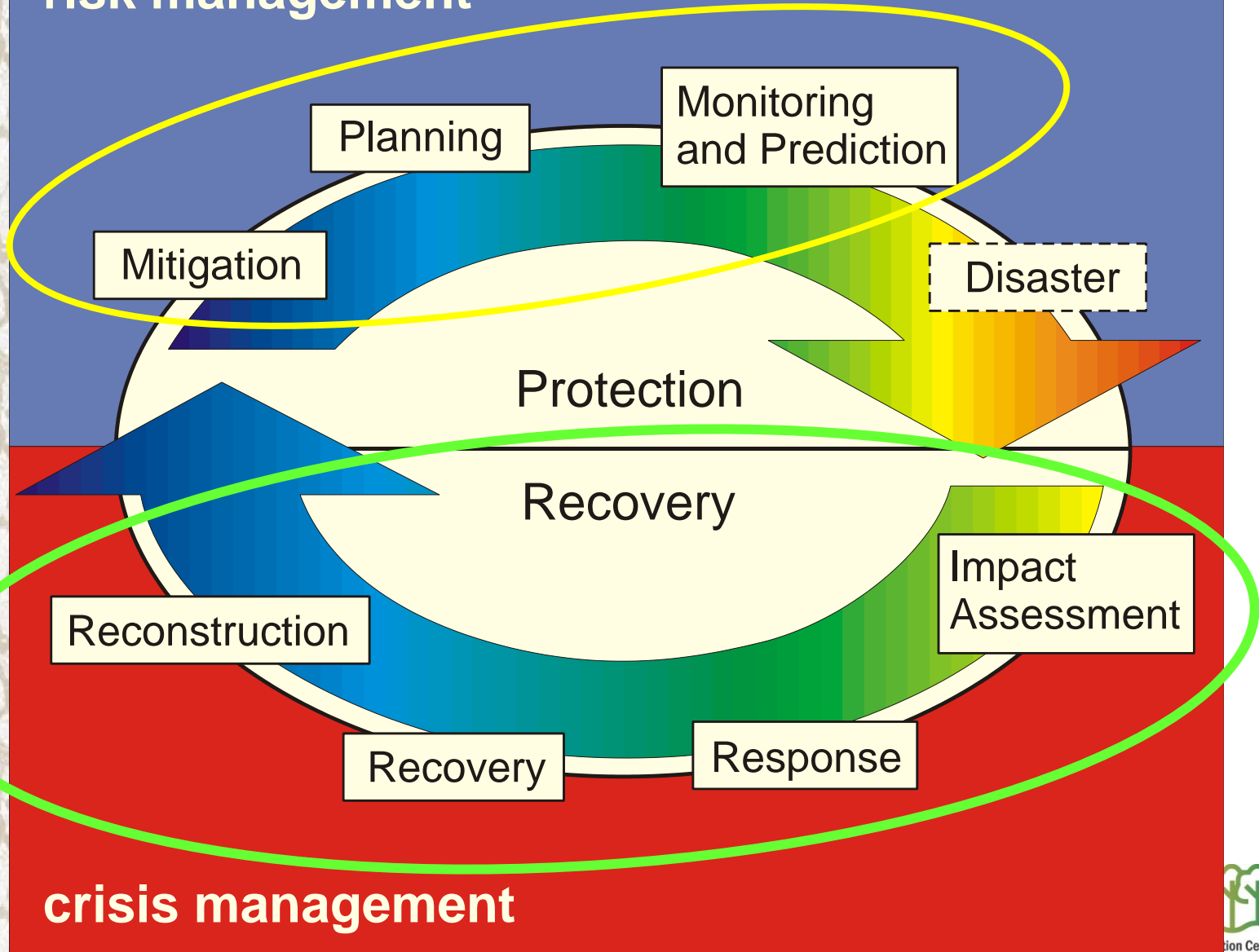
NDMC Program Objectives

- Improve the science of drought monitoring, planning, and mitigation
- Build awareness of drought and its impacts on society and the environment
- Build awareness of how human actions affect our vulnerability to drought
- Focus the attention of policy makers on the importance of drought policy and planning in the wise stewardship of natural resources

RESEARCH, OUTREACH, AND TRAINING

The Cycle of Disaster Management

risk management



Drought Management in the U.S.

- 1850s – 1970s
 - Relief based policy with increasing federal involvement over time
 - Little to no “planning”, mostly ad hoc response
 - Costly!!

**TABLE 1. President Roosevelt's Drought Relief Program
Proposed June 9, 1934.**

Program	Amount (million \$)
Special work program and human relief	125
Livestock purchase in addition to the funds already available under the Jones-Connally Act	75
Shipping, processing and relief distribution of purchased cattle	100
Loans to farmers to finance emergency feed purchases and shipments	100
Emergency acquisition of submarginal farms and assistance in relocating destitute farm families	50
Work camps to afford employment in the drought area for young men principally from cities and towns	50
Purchase of seed for 1935 plantings, and for loans to get seeds into farmer's hands	25
Total	525

**TABLE 2. President Eisenhower's Drought Relief Program,
1953-1956.**

Program	Amount (million \$)
Distributed government-owned surplus foods free through state welfare offices to needy people in cities, towns and rural areas	100
Distributed government-owned surplus feed grains to help farm and ranch families maintain foundation livestock	140
To help purchase hay and other roughage to maintain foundation livestock, including dairy cattle	26
To help implement wind erosion control measures	18
Emergency credit and livestock loans	260
Purchased beef and pork products to strengthen distressed livestock prices. Frozen hamburger was purchased to help stabilize prices of certain grades of cattle	184
Long-term, favorable-rate loans for small businesses in drought-stricken communities	1
Free grain furnished to small farm families through state welfare offices to maintain subsistence livestock	
Special permission in 562 counties in 12 states to graze soil bank reserved acres	
Total	729

TABLE 3. President Carter's Proposed Drought Program, 23 March 1977 (WESTPO, 1978).

Title	Purpose/Description	Amount (million \$)
Emergency Loans Program (FmHA)	5% loans to cover prospective losses to farmers and ranchers	100
Community Program Loans (FmHA)	\$150 million in 5% loans and \$75 million in grants to communities less than 10,000 population for emergency water supplies	225
Emergency Conservation Measures Program (ASCS)	Soil Conservation cost sharing grants	100
FCIC Insurance	Increases FCIC capital stock	100
Drought Emergency Program (Bur. Reclamation)	Creation of water bank, protection of fish & wildlife, grants to states, 5% for water supply and conservation measures	100
Emergency Fund (Bur. Reclamation)	Emergency irrigation loans	30
Emergency Power (SWPA)	Purchase of emergency power supply	13
Community Emergency Drought Relief Program (EDA)	\$150 million in 5% loans and \$75 million in grants to communities over 10,000 for emergency water supply	225*
Physical Loss and Economic Injury Loans (SBA)	Low interest loans for small businessmen (including farmers)	50**
Total		844

Total federal drought assistance estimated at **\$7-8 Billion** for 1976-77.

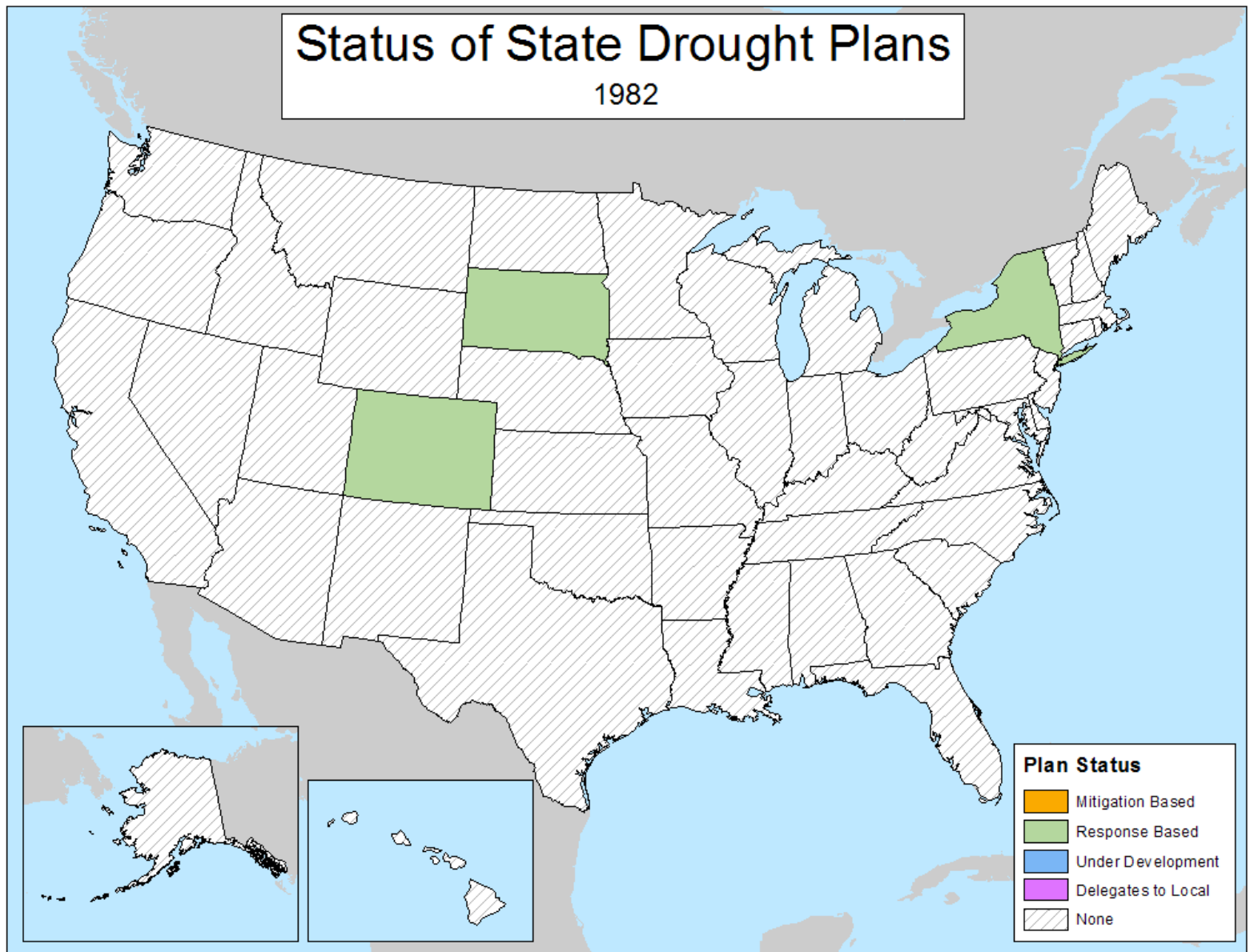
- About **40** separate programs
- Administration by **16** federal agencies

Recommendations

- Need timely and reliable drought information
 - Conditions and impacts
- Improve impact assessment
- Consistent eligibility for assistance
- Proactive development of response efforts
- Development of a National Drought Plan
- More active role in planning at the state-level

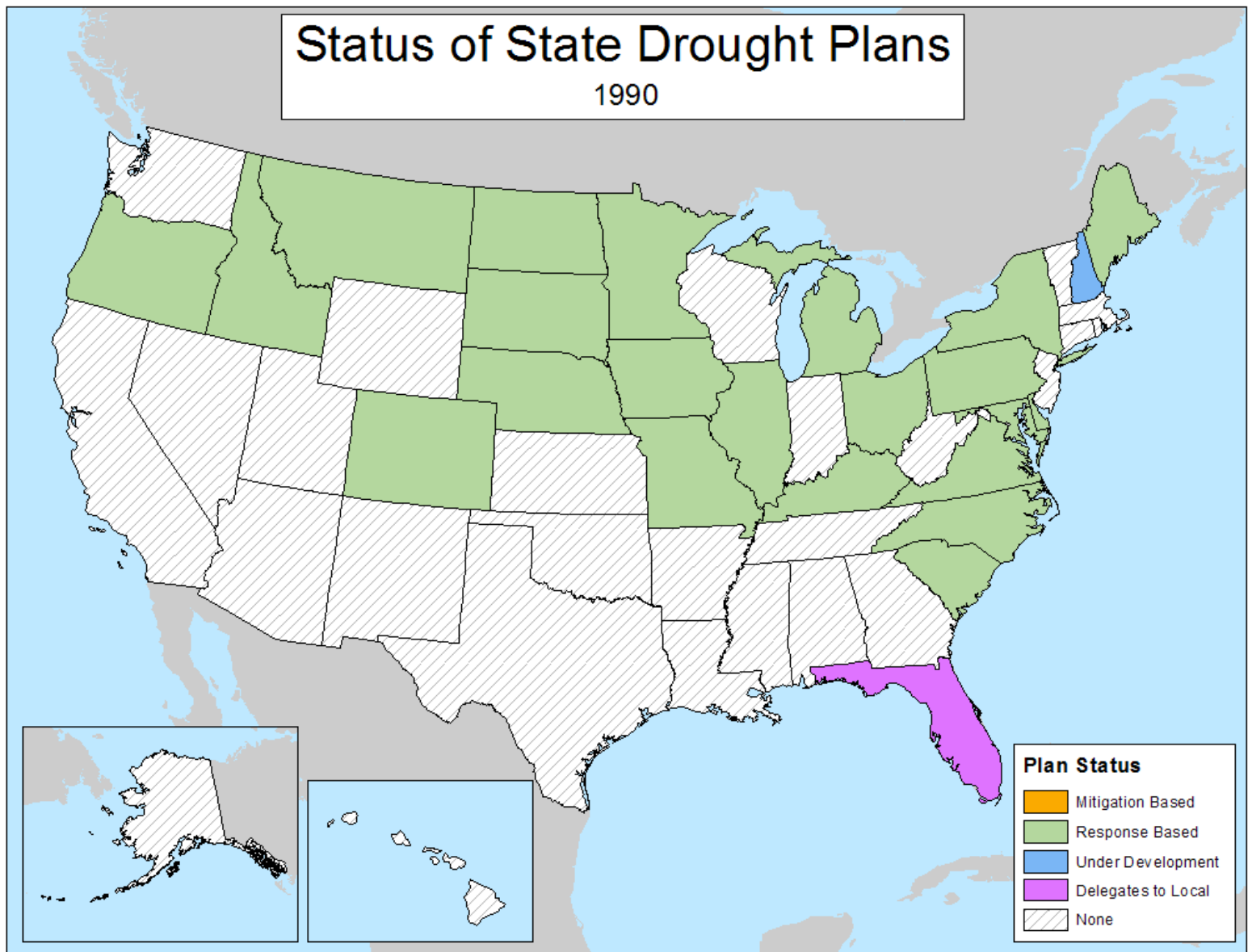
Status of State Drought Plans

1982

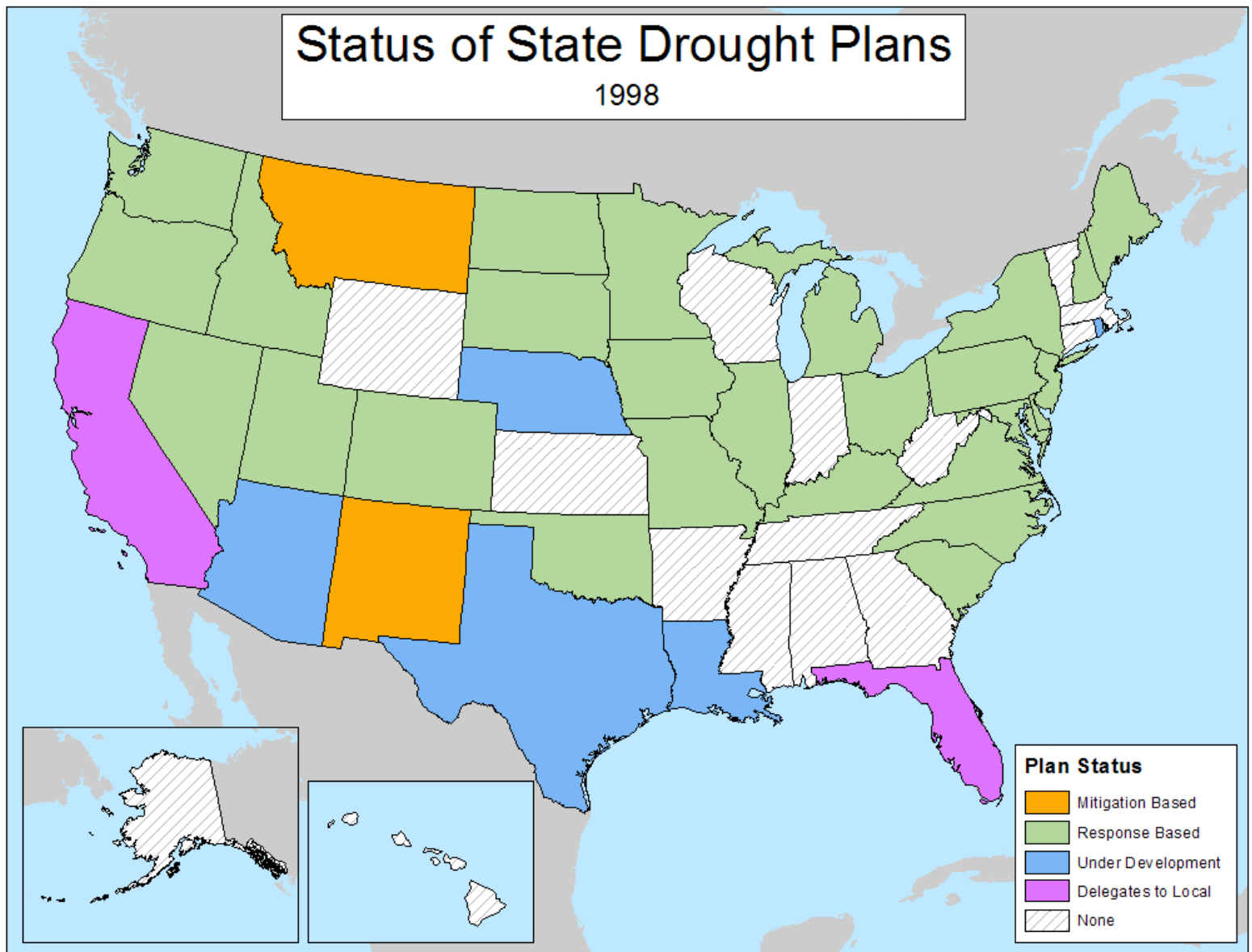


Status of State Drought Plans

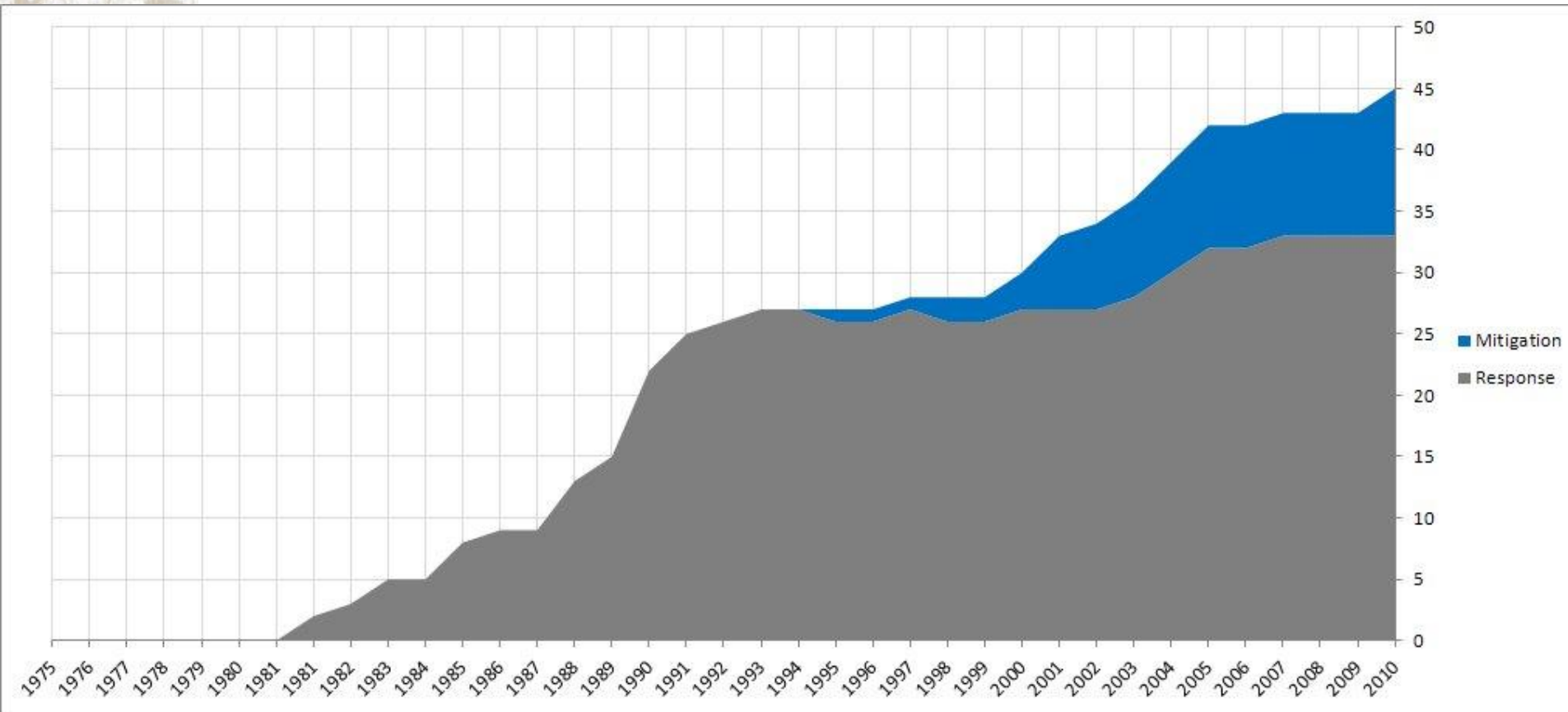
1990



1998

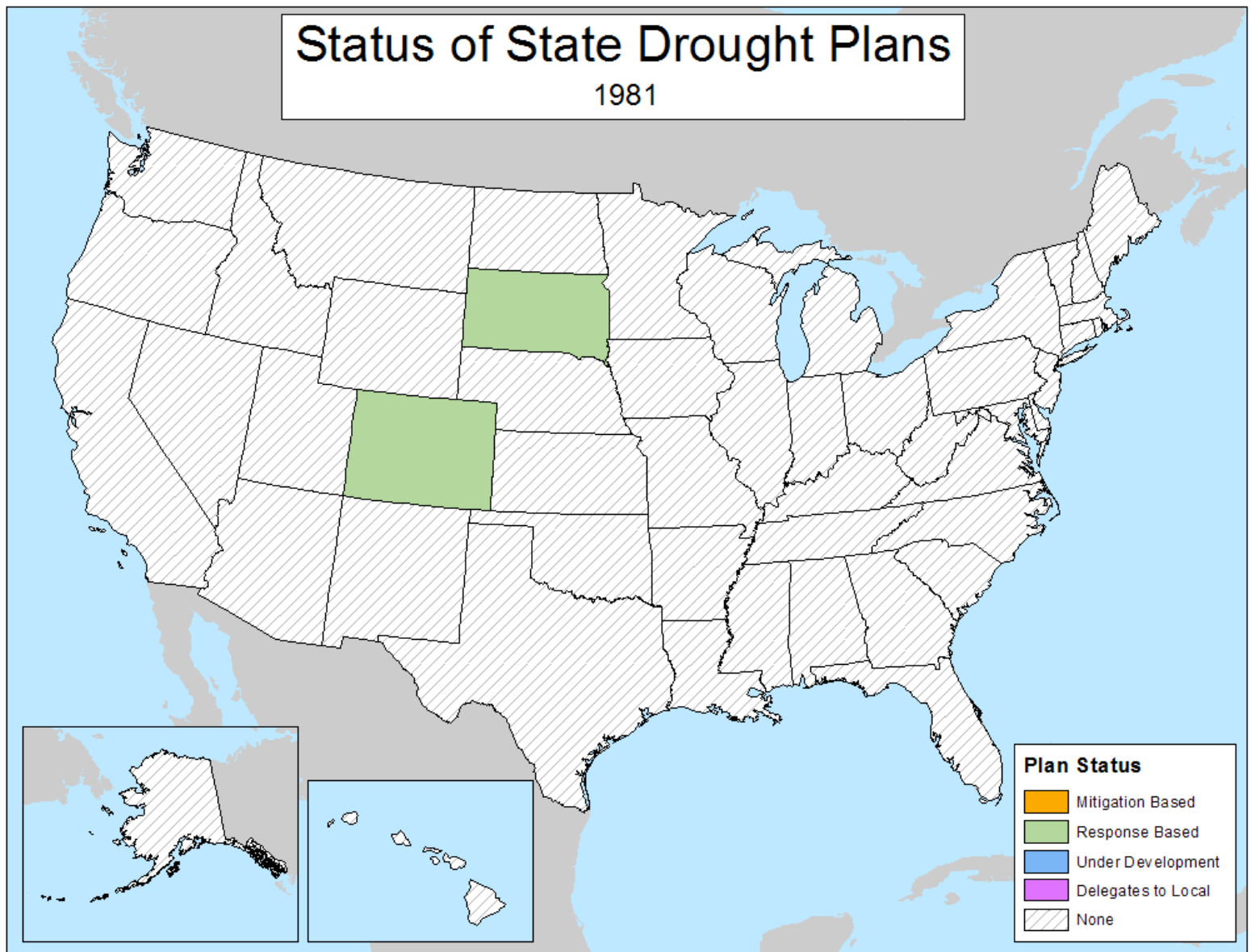


Status of State Drought Planning 1981-2010

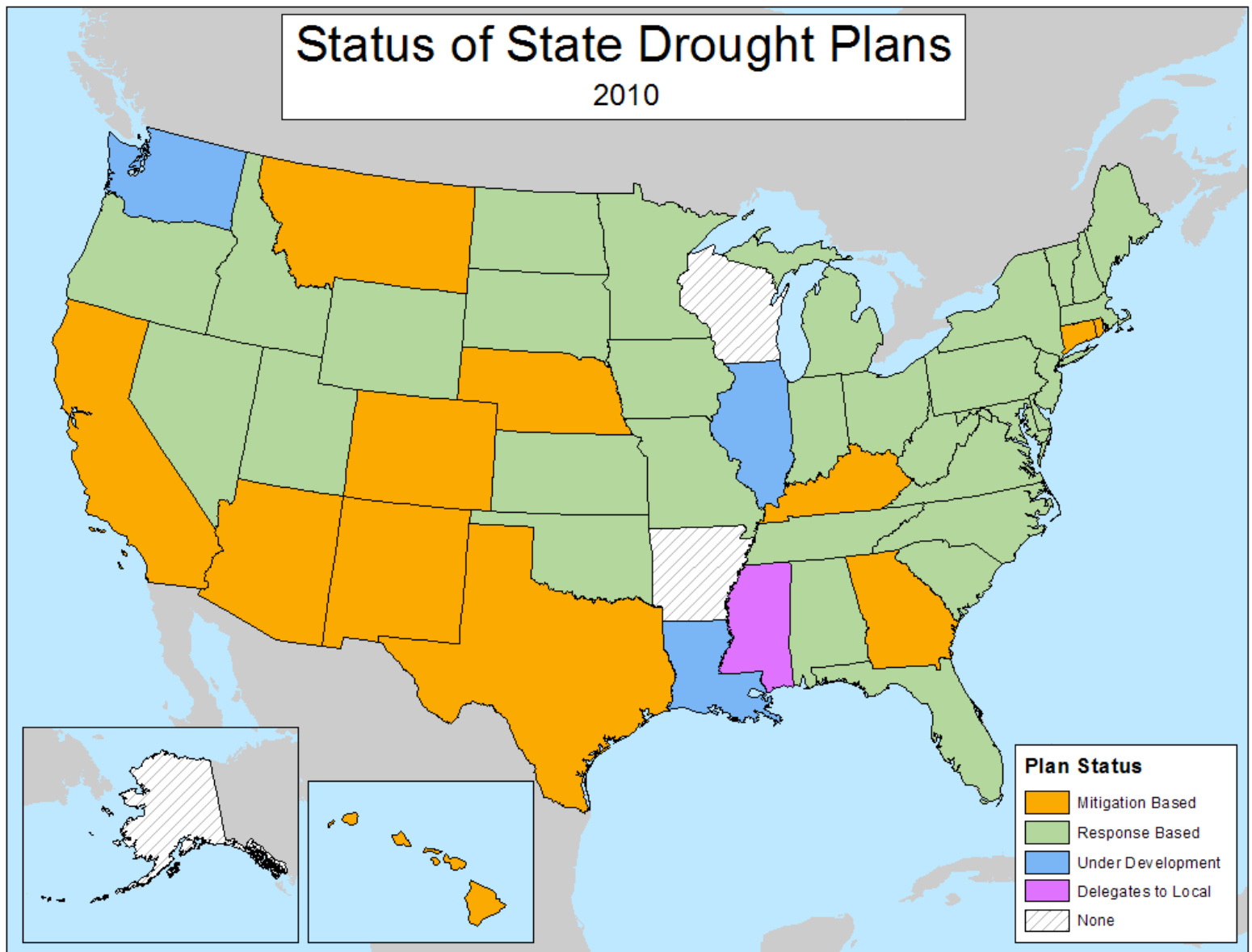


Status of State Drought Plans

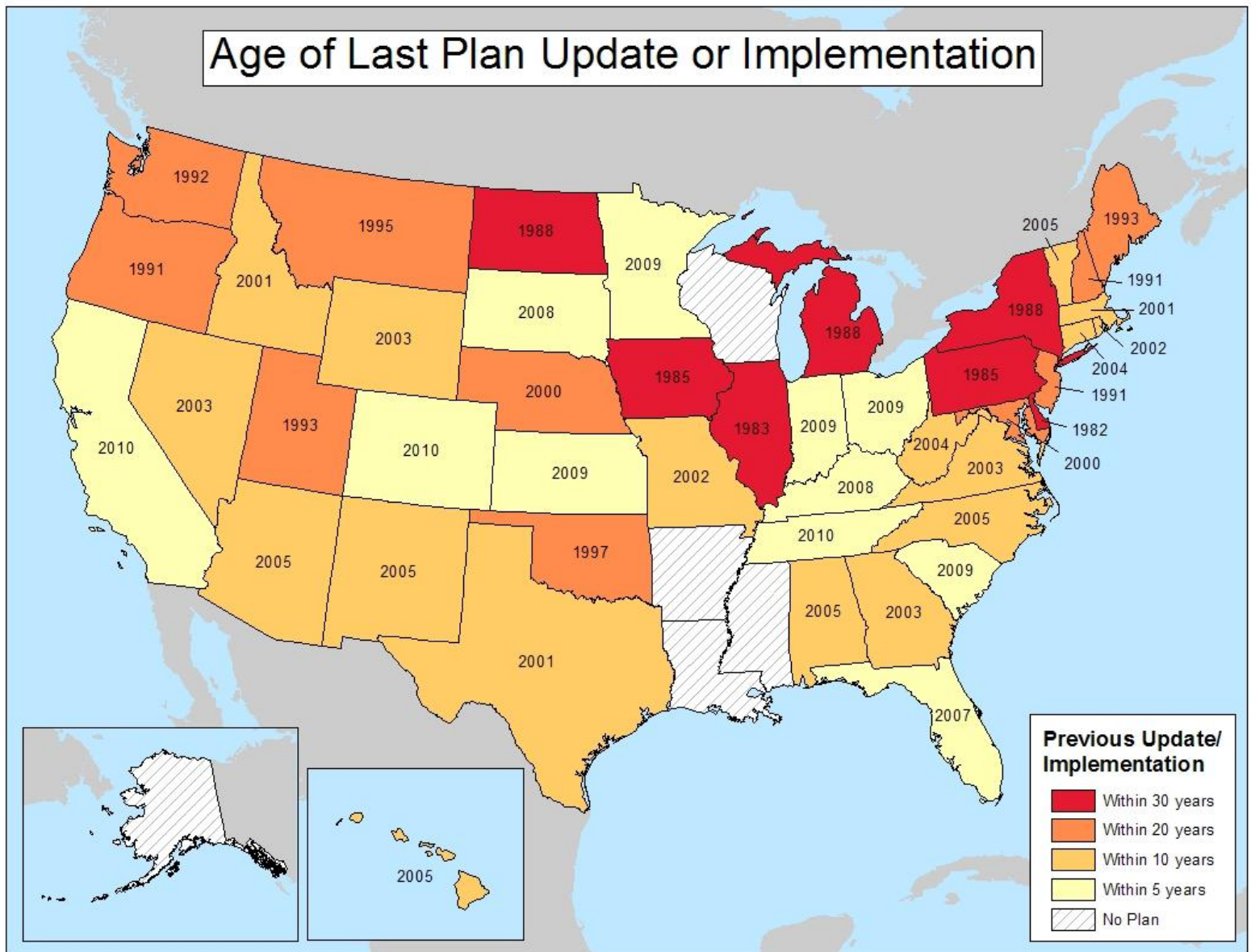
1981



2010



Age of Last Plan Update or Implementation



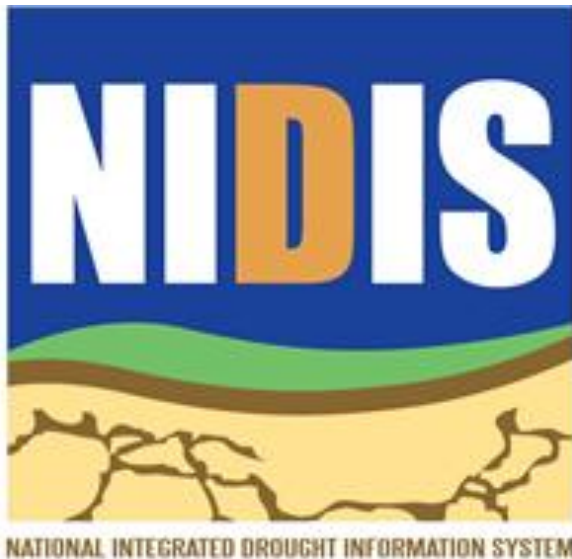
State Drought Plan Database

Database Table	Use
Basic Information	Tracks basic information such as the classification of the plan, the year of implementation, the agency responsible for the plan, etc.
Communication and Coordination	Information on how the official at the state level communicate with other levels of government
Drought Declaration and Response	Information about how drought is declared at the state level and how it is responded to
Diversity of Water Users	Tracks how the plans account for water users
Impact and Risk Assessment	Information on whether or not the plan takes drought impacts into account
Triggers	Information on how triggers and indicators are used in each plan
Uncertainty	Information about how the plan takes uncertainty such as climate change into account

National Efforts

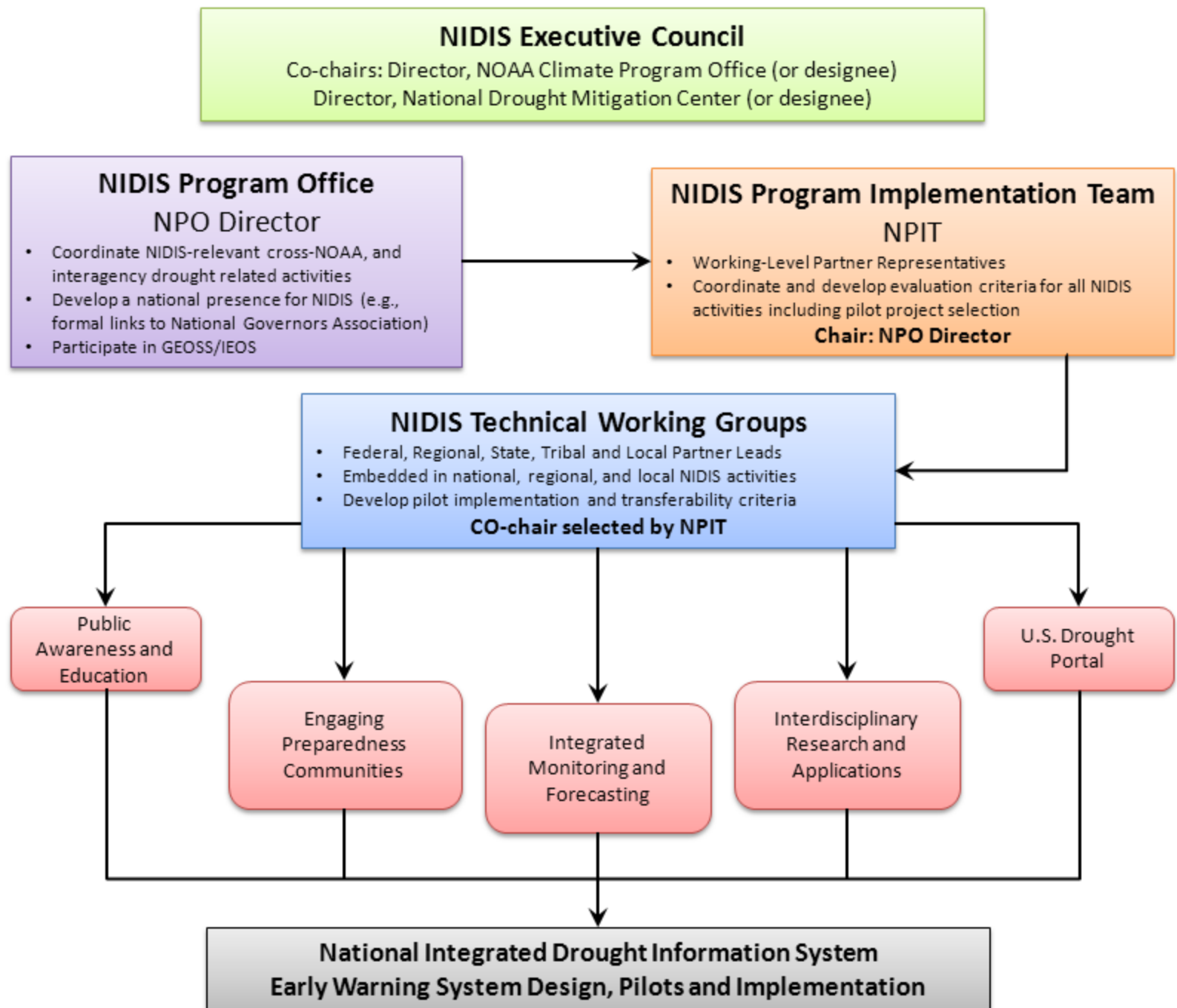
- National Drought Policy Act 1998 (P.L. 105-199)
- National Drought Policy Commission 2000 Report
 - Preparing for Drought in the 21st Century
- National Drought Preparedness Act
 - Introduced in 2001, 2003, and 2005
 - Never passed
- Western Governors Association 2004 Report
 - Envisioned the National Integrated Drought Information System (NIDIS)
- NIDIS Act of 2006
 - PASSED!

NIDIS – P.L. 109-430



Calls for an interagency, multi-partner approach to drought monitoring, forecasting, and early warning

Governance Structure for NIDIS Implementation

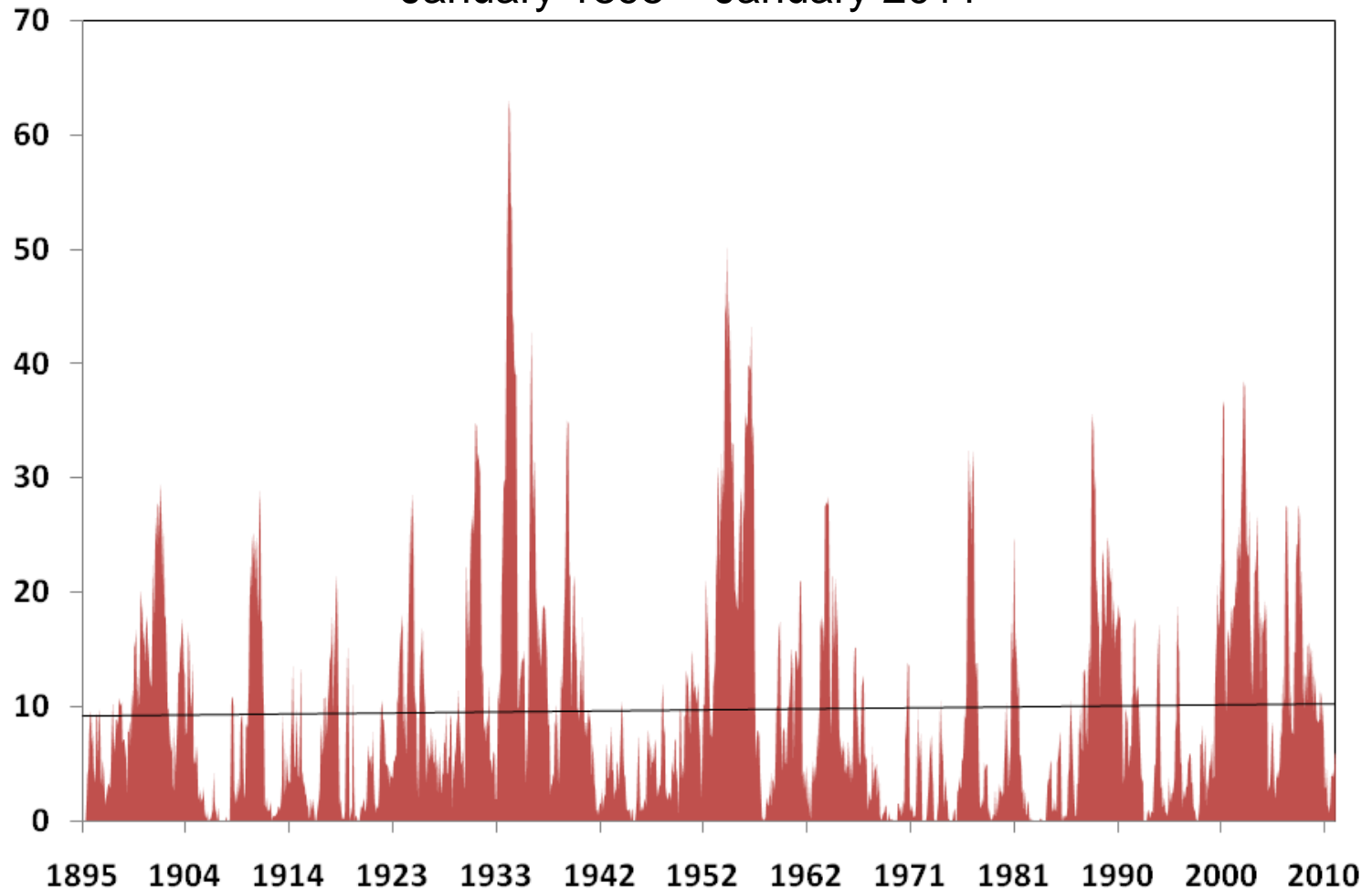


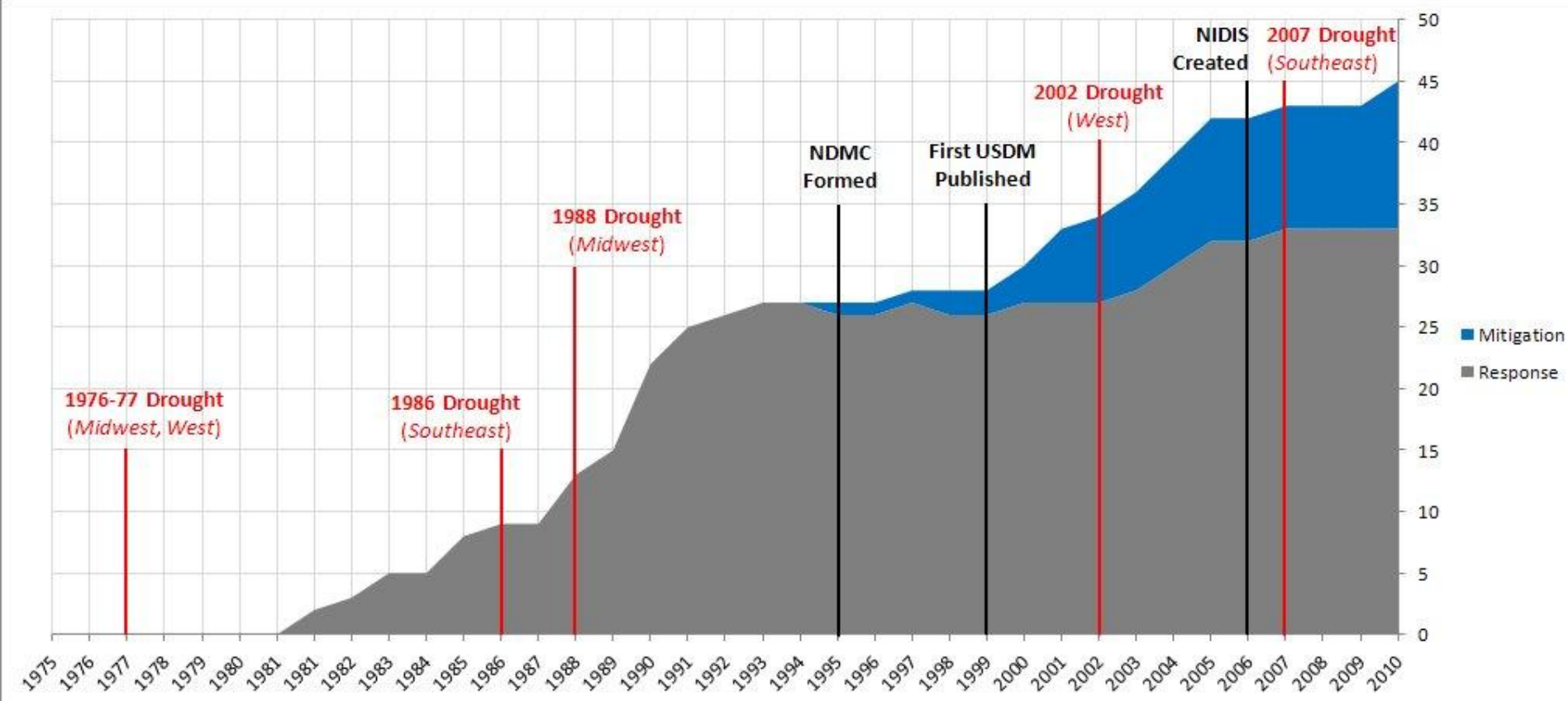
NIDIS Pilot Areas



Percent Area of the United States in Severe and Extreme Drought

January 1895 – January 2011





From State Plan Database:

- 74 total plans/updates (71 w/ known start dates)
- 46 implemented w/in 2 years of a drought
- 52 implemented w/in 3 years of a drought
- 57 implemented w/in 5 years of a drought

Components of Drought Risk Management

$$\text{Risk} = \text{Hazard} \times \text{Vulnerability}$$

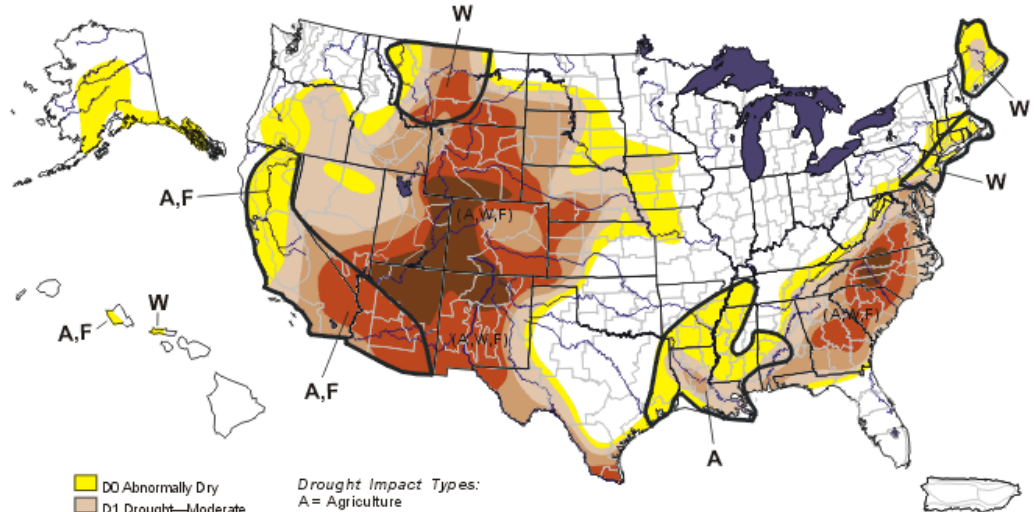
(natural event) (social factors)

U.S. Drought Monitor

July 9, 2002
Valid 8 a.m. EDT



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the C



- D0 Abnormally Dry
- D1 Drought—Moderate
- D2 Drought—Severe
- D3 Drought—Extreme
- D4 Drought—Exceptional

Drought Impact Types:
A = Agriculture
W = Water (Hydrological)
F = Fire danger (Wildfires)
— Delineates dominant impacts
(No type = All 3 impacts)

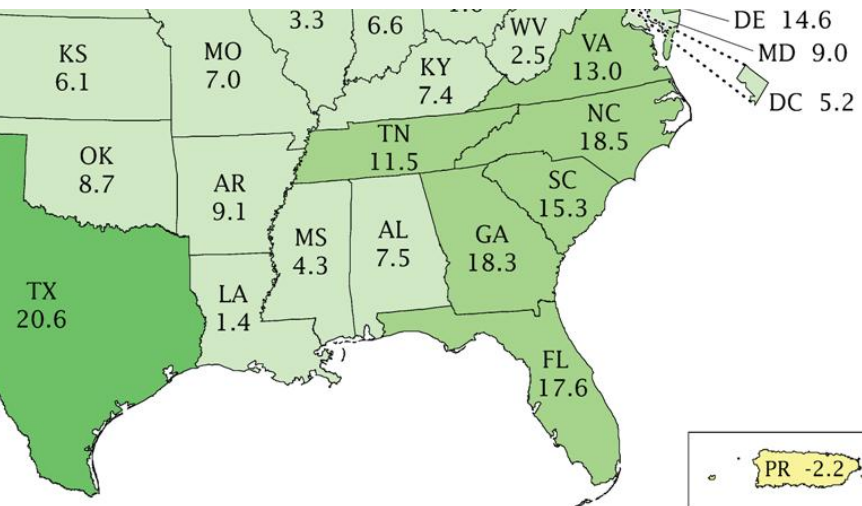
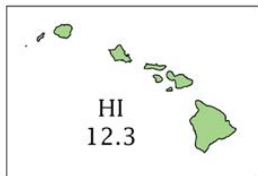
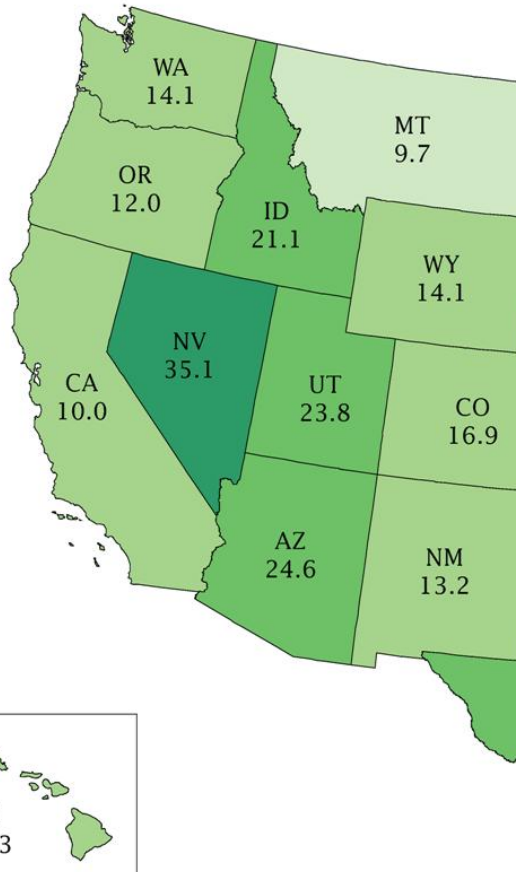
The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. See accompanying text summary
for forecast statements.



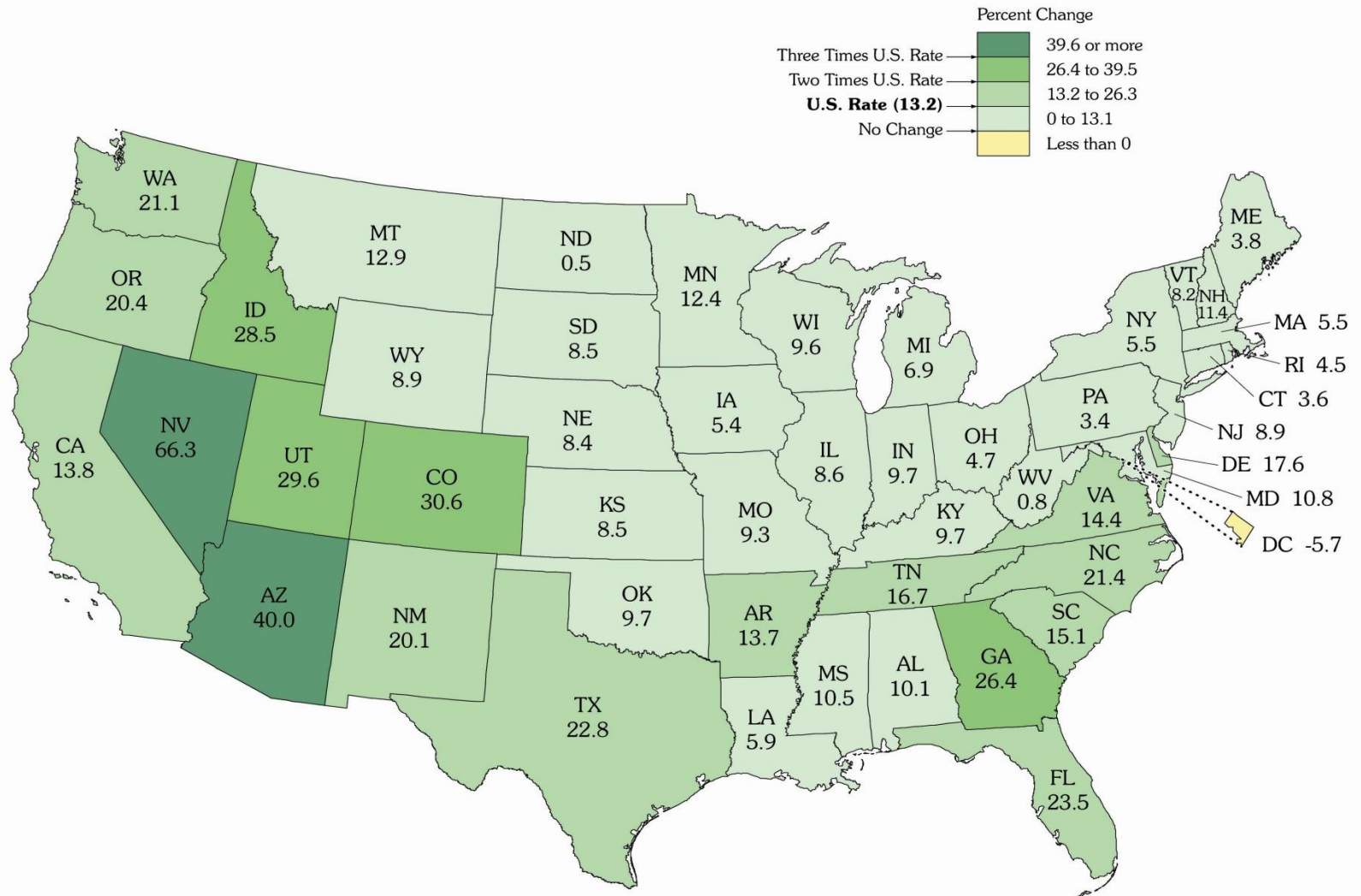
Released Thursday, July 11, 2002

Author: Mark Svoboda, NDMC

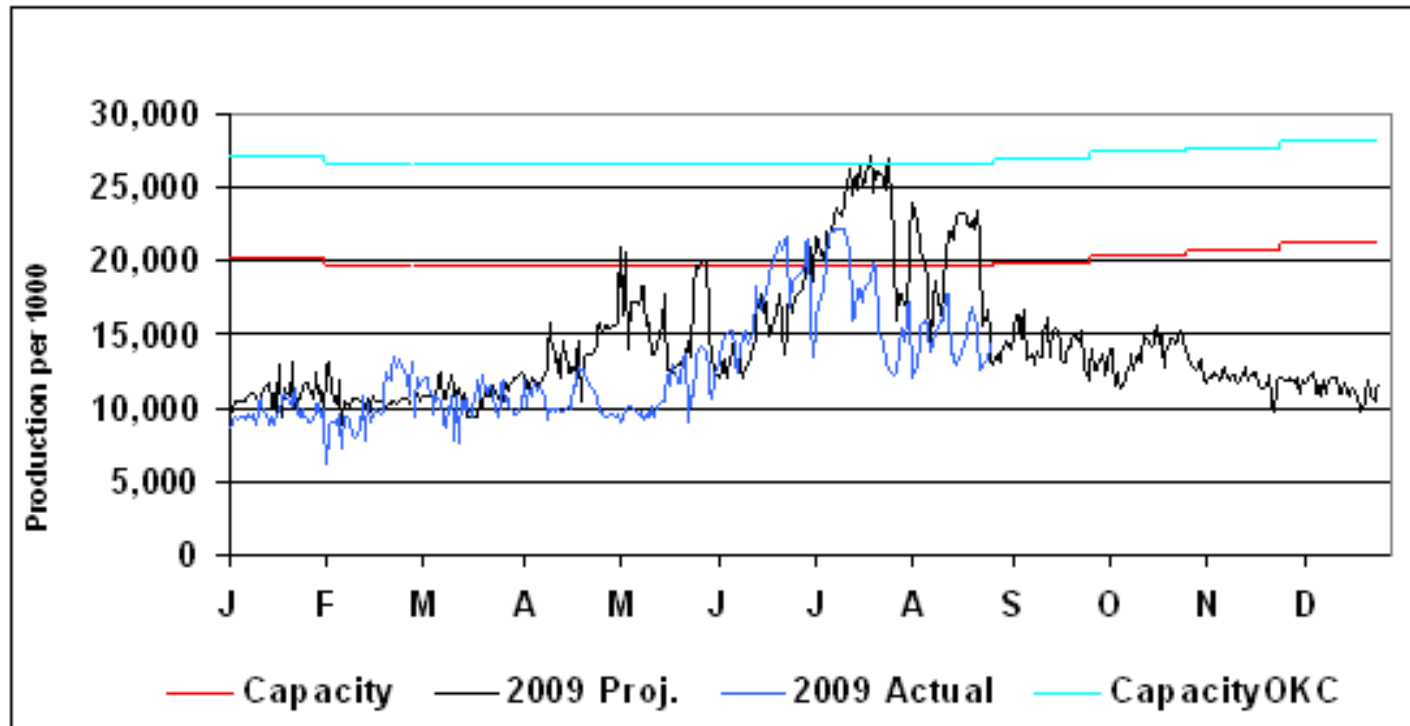
<http://drought.unl.edu/dm>



Percent Change in Resident Population for the 48 States and the District of Columbia: 1990 to 2000



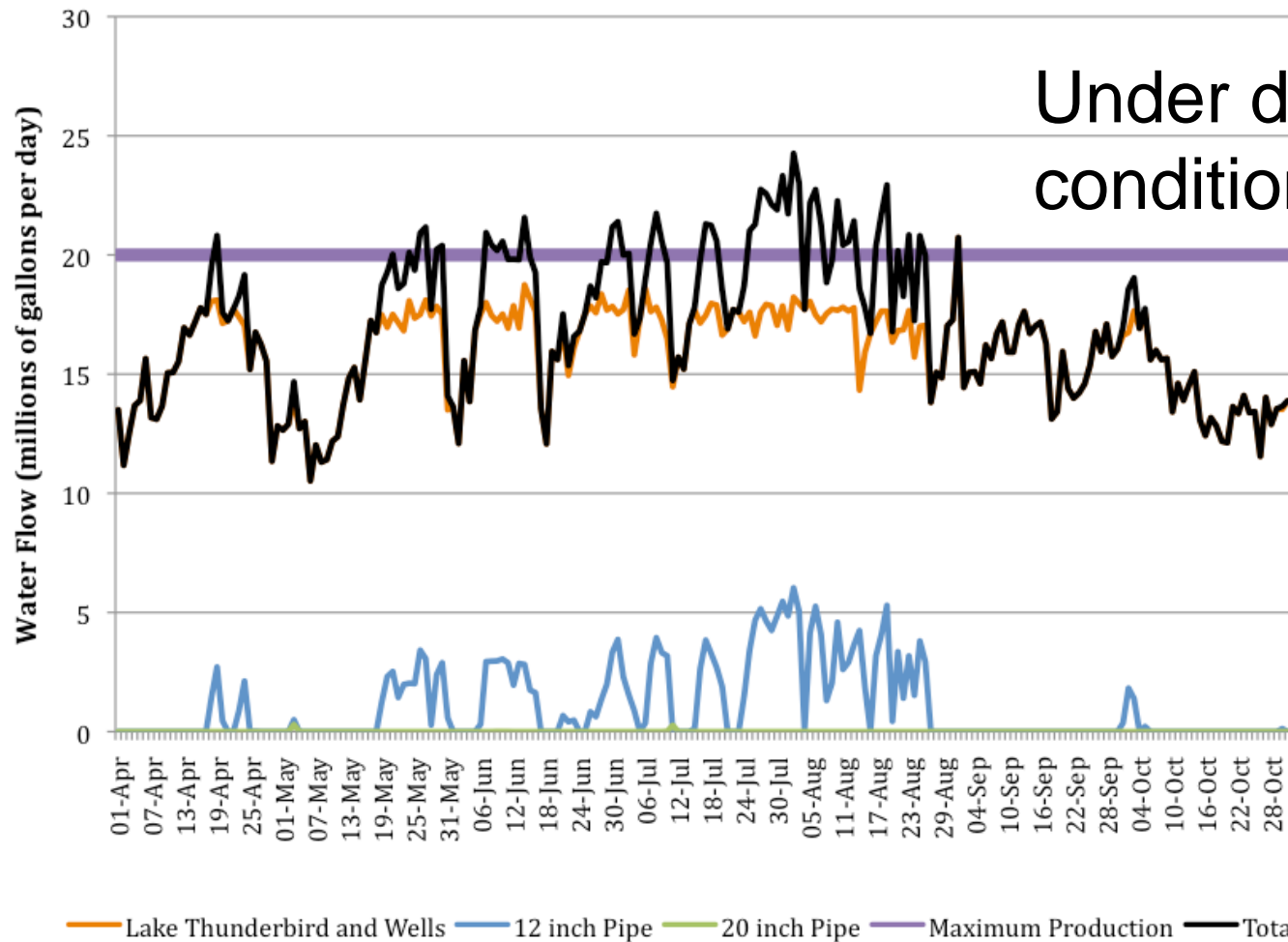
Norman, OK

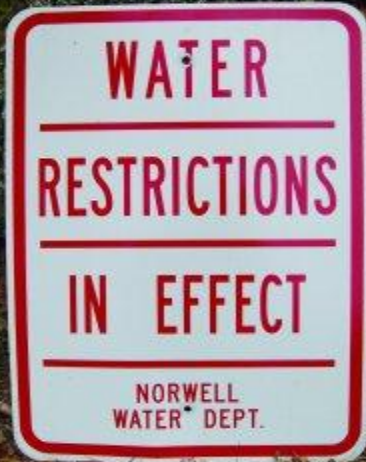


Under “normal” climate conditions

Norman, OK

Norman Water Usage 2006 (April - October)





DISASTER TYPE	NUMBER OF EVENTS	PERCENT FREQUENCY	NORMALIZED DAMAGES (Billions of Dollars)	PERCENT DAMAGE
Tropical Storms/Hurricanes	27	27.2%	367.3	50.6%
Severe Weather	21	21.2%	41.4	5.7%
Heatwaves/Droughts	15	15.2%	185.2	25.6%
Non-Tropical Floods	15	15.2%	74.3	10.2%
Fires	10	10.1%	19.2	2.6%
Freezes	6	6.1%	18.6	2.6%
Blizzards	2	2.0%	11.9	1.6%
Ice Storms	2	2.0%	5.9	~0.8%
Noreaster	1	1.0%	2.2	~0.3%
	<u>99</u>		<u>726.0</u>	

Source: NCDC Billion Dollar Weather Disasters 1980-2010

Components of Drought Risk Management

$$\text{Risk} = \text{Hazard} \times \text{Vulnerability}$$

(natural event) (social factors)

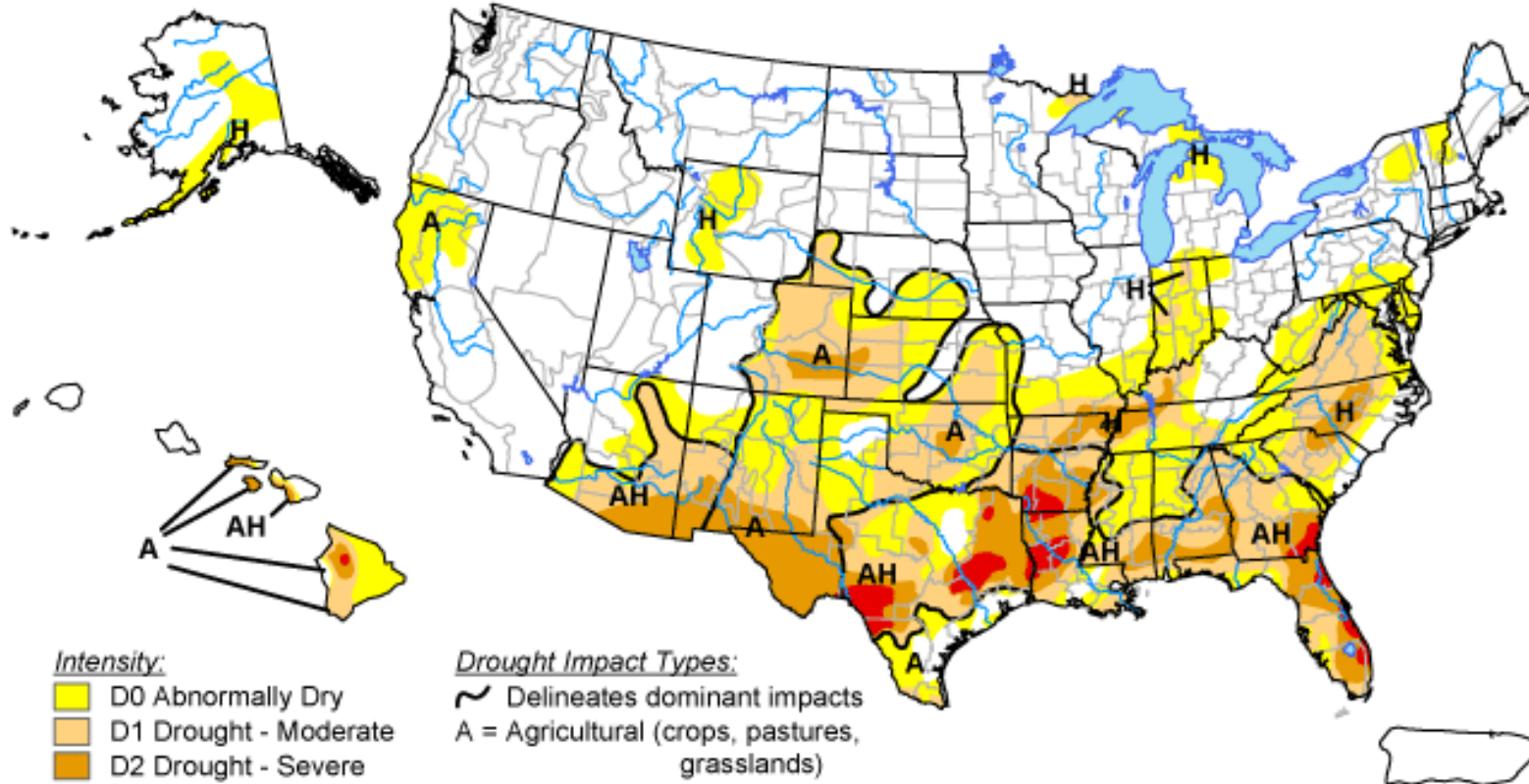
Positive Influences

- Significant advances in drought monitoring

U.S. Drought Monitor

February 15, 2011

Valid 7 a.m. EST



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://drought.unl.edu/dm>



Released Thursday, February 17, 2011
Author: Matthew Rosencrans, NOAA/NWS/NCEP/CPC

Positive Influences

- Significant advances in drought monitoring
- Increasing body of drought planning and policy literature
 - Nationally and globally
- Organizations making drought a priority
 - Western Governors' Association
 - NDMC
 - NOAA/RISA
 - WMO

Where are we going from here?

- NIDIS just getting started, continued national interest and growth
- Water and food security world-wide
- Monitoring – remote sensing!
- Increased mitigation planning at state level
- Greater focus on local level
 - Support from NIDIS
 - Research focal point
 - Interest from new groups
 - FEMA, CDC, APA, etc.

Thank you!

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<http://drought.unl.edu>